VII. PHYSICAL PLANT INVENTORY

FACILITY INVENTORY AND INSPECTION PROGRAM

Buildings and other structures in state parks are necessary to provide services to park visitors. These structures are essential for protecting public safety, health, and welfare while providing opportunities for outdoor recreation. They include infrastructure, such as roads, parking lots, trails, and systems for potable water, electrical distribution, and sewage treatment. They also include operational and recreational facilities, such as campgrounds, picnic areas, concession building, boardwalks, park offices, residences, pump houses, warehouses, barracks, maintenance shops, visitor centers, etc. These facilities must be properly maintained to provide for a safe, continuous, and quality park-use experience. In addition to undergoing normal maintenance and repair, buildings and structures in the parks are periodically inspected to determine their condition and their repair and renovation needs under the Division's Facility Inventory and Inspection Program (FIIP).

Carolina Beach State Park Buildings In Use

A list of the buildings and structures currently in use and brief descriptions of them follows:

- Visitor's Center: Built in 1998, but not opened until March 1999 because of moisture problems. 5,923 square foot (SF) wood structure. One story with cathedral ceiling. Used as visitor's center and administrative offices. Good condition.

Figure I-1. Maintenance Office and Shop

- Maintenance Office & Shop: Built in 1971. 1,706 SF wood frame building used as maintenance office and shop. Formerly used as park office/maintenance building. Good condition. (Figure I-1)
- Vehicle Shed: Built in 2003. 1,920 SF heavy-timber structure with concrete slab floor and electrical wiring. Located in maintenance area. Good condition.
- Boat Shed: Built in 1988. 519 SF wood structure with a concrete floor. Unheated storage building. Good condition.
- Wood Shed: Built in 1975. 89 SF unheated wood frame building used to store firewood. Good Condition.
- Marina Office: Built in 1991. 3,072 SF wood frame structure on pilings used as the marina office. Good condition. Vinyl tile floor in snack room and store area was replaced in 2003. Ceramic tile floor in showers was replaced in 2004. 42 boat

slips are in place, with space available for additional slips. Floating docks are in fair shape. Park staff recently completed electrical improvements.

- Public Toilet Building: Built in 1971. Heated wood-frame building used for public toilets. Located in the picnic area. Good condition.
- Washhouse, Campground Loop 1: Built in 1971. 830 SF heated concrete block building with wood siding, used as a washhouse. The washhouse is currently being remodeled to meet ADA guidelines.
- Washhouse, Campground Loop 2: Built in 1971. 830 SF heated concrete block building with wood siding, used as washhouse. The washhouse is currently being remodeled to meet ADA guidelines.

Figure VII-2. Campground Washhouse

- Pump House: 51 SF unheated concrete masonry building used to house pump equipment. The park is now on city water and the pump equipment is no longer in use. The pump house will be demolished when the tank is removed. Fair condition.
- Pit Privy: Built in 1981. 21 SF unheated wood-frame primitive toilet facility. Fair condition. Located in the group camp area.
- Pit Privy: Built in 1981. 21 SF unheated wood-frame primitive toilet facility. Fair condition. Also located in the group camp area.
- Ranger Residence: Built in 1977. 1440 SF heated wood-frame structure used as a ranger residence. Good condition.
- Storage Shed at Residence: 101 SF unheated wood-frame structure used as storage building at the superintendent's residence.
- Superintendent's Residence: Built in1991. 1585 SF heated wood-frame structure used as the superintendent's residence. Good condition.
- Ranger Residence: Built in 1991. 1585 SF heated wood-frame structure used as a ranger residence. Good condition.
- Marina Basin: Last dredged in 1999. Dredging is expected approximately every 7-10 years. Depth is currently a problem.
- Fishing Pier: Built in 1996. Handicapped accessible, pressure treated wood structure on six-inch pilings. Occasions of high water have caused the pier to float upwards in some areas, causing an unlevel surface, but the pier remains operationally sound (Figure VII-3).

Figure VII-3. Fishing Pier

Facility Repair Needs

Buildings and structures at Carolina Beach State Park are in good condition considering their location in a harsh coastal environment. They are being adequately maintained. Staff currently has a contract underway to make both washhouses and the picnic area restrooms ADA compliant. Other needed maintenance and repairs are ongoing.

A capital improvement project exists to make needed repairs and renovations identified under the Facility Inventory and Inspection Program. Work is needed for the maintenance office/shop, washhouses, public toilet building, marina office, residences and other structures. Park staff will continue to address these repair needs using major maintenance funds until repairs are completed or the Park Building Renovations capital improvement project is funded.

ROAD AND PARKING INVENTORY

Background information

The Institute for Transportation Research and Education (ITRE) conducted a road inventory for Carolina Beach State Park in March of 1990 and found the following quantities: 2.48 miles of paved road; 0.22 miles of unpaved road; 8,601 square yards of paved parking lots; and 506 square yards of unpaved parking lots. Since the 1990 ITRE inventory, a new visitor center parking area was constructed (in 2000) that consisted of 2882 paved square yards; and the maintenance area (the former park office) parking lot, consisting of 754 square yards, was paved in 1994. The revised quantities are now:

Paved road – 2.48 miles;
Unpaved road - .30 miles;
Paved parking lots - 12,237 square yards; and
Unpaved parking lots - 3000 square yards.

Road and Parking Description

The road system is comprised of a main park road (State Park Road) approximately 1.1 miles in length. State Park Road connects to the visitor center parking lot, Nature Trail Lane, Campground Road, and dead-ends at the marina. State Park Road is 20-feet wide with a two-foot wide paved bike lane on each side. The other two-lane roads within the park are 19 to 20-feet wide.

Campground Road is a single lane, 12-foot wide road that runs through two camping loops. The paved areas have an 8-inch stone base with asphalt depths ranging from 1½ to three inches, since the road way has been resurfaced on one occasion. The shoulder widths are approximately four feet. Drainage is handled through concrete pipes that are located at low points along the roadways and parking lots. Most pipe culverts are concrete, and there are four concrete catch basins located in the park. Since the soil is a sandy texture, most of the run off is absorbed into the ground.

Road and Parking Conditions

The road and parking lots were constructed in 1969-70 and most were resurfaced in 2001. Their condition is good. The Campground Road was not resurfaced in 2001 and is in fair shape. The marina parking lot was redesigned and repaved in 1990 and is in good shape. Bike lanes were added to the main entrance road in 2001. Paving of the maintenance parking lot is scheduled for 2004. Culverts are in good condition.

Repair Needs and Costs

The superintendent has requested that the marina parking lot be expanded to help meet current demand for parking for today's larger vehicles and boat trailers and for trailhead parking. There presently is room on the southern end of the parking lot to expand parking by approximately 40 additional spaces; however, an environmental review of the proposed expansion area is needed. If constructed, the parking expansion could be a mixture of car and boat trailer spaces.

The Campground Road will need to be resurfaced within the next five years. Several sinkholes need repair and edge patching needs to be done in the campground. The marina parking lot needs patching in front of the marina store. Existing NC DOT maintenance funds can take care of the patching needs.

A 40-car expansion of the parking lot at the marina will require approximately 2500 square yards at $30.00/yard, for a total cost of $75,000. The expansion will be a part of a new capital improvement project for Carolina Beach State Park.

SEWER SYSTEM

Description

Every building that discharges sewage has its own separate sewer system with a septic tank and nitrification drain lines. There currently are ten systems in operation at Carolina Beach State Park. The sewer systems and a description of each follows:

Campground Washhouse A (Loop # 1): This system has a 5000-gallon septic tank with a 1000-gallon dosing tank, with a single siphon located approximately 400 feet from the washhouse. Ten 140-foot drain lines are fed from the concrete distribution box. The system was installed in 1971.

Campground Washhouse B (Loop #2): A 5000-gallon system with a 1000-gallon dosing tank, with a single siphon located approximately 500 linear from washhouse B serves camping loop two. Ten 140-foot drain lines are fed from a concrete distribution box. The system was installed in 1971.

Visitor's Center: A 2500-gallon septic tank serves the park office, with six 80-foot drain lines on the south side of the visitor center. The system was installed in 1999.

Marina Operation Center: The marina is served by a 4000-gallon septic tank with a 4000-gallon pump tank with 24 58-foot low-pressure lines of 1½ inch PVC. The pump tank has two five-horsepower effluent pumps that pump the sewage to a field at the intersection of Nature Trail Lane and State Park Road, located approximately one-half mile from the marina. The system was installed in 1989.

Picnic Toilet Building: The picnic toilet building has a 2500-gallon septic tank with a concrete distribution box with six 120-foot drain lines. The system was installed in 1970.

Maintenance Building: This system consists of a 900-gallon septic tank with three 50-foot nitrification lines. The system was installed in 1970, and the drain lines were replaced in 2002.

Superintendent's Residence: Located behind the maintenance area, this system has a 900-gallon septic tank with three 50-foot drain lines. This system was installed in 1991.

Ranger Residence #1: This house near Dow Road, constructed in 1977, has a 900-gallon septic tank with an unknown amount of drain lines.

Ranger Residence #2: This newer residence was built in 1991. It has a 900-gallon septic tank with three 50-foot drain lines

Ranger Residence #3: This privately owned mobile home serves the Fort Fisher State Recreation Area superintendent. It has a 900-gallon septic tank with three 50-foot drain lines and a distribution box. The system was installed in 1985.

Current Conditions

Overall, the sewer systems are in good shape. Park staff does a good job in maintaining the systems, and there is a licensed sub-surface operator on site. The septic tanks are on a rotating schedule for pump out and seem to be okay. The picnic area septic tank needs a cast iron ring and some landscaping on its drain field. The marina pump tank is approximately 14 years old and corrosion has started inside the tank. All materials that are not stainless steel are corroding at an excessive rate. The marina drain field has some problems with the pressure head settings, but the system continues to function okay. The two campground systems are the oldest, but they seem to be adequate at this time. The washhouse B tank has recently been pumped out and has ruts in the drain field where the pump truck got stuck. The drain field is routinely mowed.

Repair Needs and Costs

The pumps and associated piping will need to be replaced at the marina, and the drain field will need replacing within the next five years. All septic tanks need risers and filters on them, a requirement added in 1999. The distribution box needs to be uncovered and inspected for roots and even flow, especially at the campground. Costs are estimated as follows:

- Replace the marina drain field and renovate the pump tank pumps and hardware: $50,000.
- Inspect and level the distribution boxes with five new aluminum lids at $500 each: $2500.
- Install ten filters and risers at $500 each: $ 5000.

WATER SYSTEM

Description

The park is supplied water by the Town of Carolina Beach. Until 1999, the park had its own deep well and a 40,000-gallon elevated water storage tank that supplied the park. In 1999, an agreement was worked out with the town that allowed the park to tie on to the town's public water supply. The water piping is class 200 PVC piping of various sizes with valves at all service connections. Approximately 6500 feet of waterline runs from the main park gate to the campground, marina, visitor center, and ranger residences. The park pays one monthly water bill. It usually averages from $200 to $400 a month, with the peak around July.

Current Conditions

The main lines are in good shape. The valves are in fair shape and need to be exercised on a routine schedule. The existing 40,000-gallon tank is currently being used to keep it from deteriorating further. The well is still hooked up and needs to be abandoned.

Repair Needs and Costs

The well that is located between the campground and new visitor center is now disconnected from the water lines and needs to be properly abandoned. Some 800-feet of asbestos/cement pipe that is still being used at the old well site needs replacement. The water tower is no longer needed for the water system, although water continues to flow through it. The water tower is being used for the park radio system, so another location is needed for communication purposes before the tower is removed. If kept long term, the tower would need painting, estimated to cost $50,000 in 2000. Painting should be avoided by relocating the communications equipment and surplusing the tower, hopefully at little or no cost.

ELECTRICAL SYSTEM

Description and Conditions

Park power is fed underground and is supplied by Progress Energy Corporation. All of the park facilities are supplied underground power by pad-mounted transformer. The system was installed between 1969-75 and is in good shape. The power company owns the power and will do any replacement that is needed.

Repair Needs

Progress Energy has recently repaired conduit and support brackets for the marina parking lot area light poles. Electrical work that is needed around the floating docks will be done as part of a capital improvement project.

TELEPHONE SYSTEM

Description and Conditions

Bell South provides phone service. The visitor center has two voice lines, one fax line, two modum lines, and two alarm lines for the fire and security systems. Nine phones are in the building. The maintenance area has one voice line that is also used for dial-up. The marina has two voice lines and one line used for credit card authorizations only. There are two phones located in the marina. A pay phone is located at both the marina and the park office. Current conditions are good, and no repairs are needed.

Internet service is currently via dial-up. Park staff will work with the Division Computer Consultant to investigate improvement of this service.

MAJOR CAPITAL IMPROVEMENT PROJECT PRIORITIES

As a part of the general management plan process, the four proposed capital improvement projects at Carolina Beach State Park were carefully reviewed. In reviewing these projects and looking at the park for other capital improvement needs, the general management plan evaluation team considered factors such as changes in environmental regulations, condition of facilities, natural heritage inventory, recreation demand, operational issues and needs, visitor safety considerations, State Park Act mandates, and trends.

Capital improvement project review resulted in the elimination of one project, *New Water Supply System.* This project included connecting to city water from the Town of Carolina Beach and demolition of the tall steel water tank. The park has already been connected to city water, but the tank demolition has not taken place. Because the city water hookup - the major component of the project - is complete, the project was eliminated. Demolition or surplusing of the water tank will take place after another location is arranged for the park's

communication equipment that is presently located on top of the water tank. Replacement of 800 feet of asbestos/cement pipe will be accomplished using Major Maintenance funds.

The other three proposed capital improvement projects are still needed, although some amendments to their project scopes were made. Two new projects were created: *Two Picnic Shelters and Parking Improvements*, and *Tent/Trailer Campground Improvements*. Following the general management plan review and revision of the existing projects and the addition of the two new projects, the five projects were then evaluated and ranked using the Division's Project Evaluation Program (PEP), thus creating a revised project priority list of capital improvement projects for Carolina Beach State Park. The revised project priority list is shown below. Carolina Beach State Park's capital improvement projects were then combined with projects evaluated and ranked for other state park units, resulting in a priority list of capital improvement projects for the entire state parks system. The Carolina Beach State Park project priority list is shown below and is followed by a brief description of each project.

Carolina Beach State Park Project Priority List

Rank	Project Name	Score*	Cost
1	Two Picnic Shelters and Parking Improvements	620	$529,669
2	Park Building Renovations	597	264,644
3	Tent/Trailer Campground Improvements	590	862,766
4	Marina Dredging, Dock Additions and Improvements	511	1,231,916
5	Maintenance Area Improvements	488	909,387
		TOTAL:	$3,798,382

***** *The score comes from the Division's Project Evaluation Program (PEP). The PEP uses an evaluation formula to rank projects that considers four factors: the objective of the project; the justification or urgency for funding; the estimated annual number of persons (visitors and/or employees) who are affected by the project; and the project's significance, ranging from local to national. The park superintendent, district superintendent, and division management evaluate projects. There are 15 objectives categorizing a project's purpose, and each project can have a primary and secondary objective.*

Capital Improvement Project Descriptions

1. Two Picnic Shelters and Parking Improvements: This project is subject to U.S. Army Corps of Engineers (ACOE) approval, and environmental review and approval is required before it can go forward. Included are construction of two eight-table picnic shelters, one in the picnic area and one at the marina area, and the addition of 20 parking spaces at the picnic area near the toilet building. Also included is the expansion of the marina parking lot by 40 spaces and resurfacing

and restriping of the existing marina parking lot. The construction of the marina area picnic shelter is contingent upon decisions about the future operation of the marina. Cost is estimated to be $529,669.

2. Park Building Renovations: These building renovations were identified by the Division's FIIP inspection report and include: major repairs to the maintenance shop/office, two washhouses, public toilet building, marina office, and two residences; minor repairs to the woodshed, pump house and storage building. The park superintendent will continue to complete as many repairs as possible with major maintenance funds and the project costs should be adjusted annually as repairs are completed. Cost is estimated to be $264,644.

3. Tent/Trailer Campground Improvements: This campground improvement project adds electrical hookups to campground loop number two in order to meet the high demand for such campsites. It also adds borders and tables to campsites in both loops. The two washhouses will be either renovated and upgraded to meet current building codes or replaced with new structures. A decision on renovation versus replacement will be made at the time of project funding; additional funds may be required to demolish the old structures and build new ones. One dump station is currently inoperable, so dump station improvements will also be made. Cost is estimated to be $862,766.

4. Marina Dredging, Dock Additions and Improvements: This project calls for construction of 14 new boat slips to bring the marina to its maximum capacity of 56 slips. The new slips will use the same design as the existing ones in order to provide a uniform look to the marina. Also included is installation of a flagpole and a full set of warning flags. The marina needs periodic dredging in order to maintain a sufficient depth for boating traffic, but future dredging is contingent upon location of a suitable spoil site and other considerations that need to be resolved before this project is funded. (See Chapter VIII for further discussion of marina operation and dredging.) Project scope additions to the project include repairs to the existing floating courtesy dock and 50-amp service to the 42 existing boat slips. The project cost was revised, increasing to $1,231,916.

5. Maintenance Area Improvements: This project includes all maintenance area needs. Because Carolina Beach State Park is the maintenance operations area for nearby Fort Fisher State Recreation Area, vehicular storage and warehouse needs are larger than the standard park unit. Where possible, buildings are the standard design. The project includes industrial equipment, a flammable storage building, vehicle shed, vehicle lift and vehicle wash station. Cost is estimated to be $909,387.

12/06